

IN THE CLAIMS:

Please amend Claims 1, 7 and 12 as shown below. The claims, as pending in the subject application, read as follows:

1. (Currently Amended) A printing control apparatus for outputting print data and executing printing, comprising:

storage means, to which rendering instructions are input, for storing the rendering instructions page by page;

processing means for performing color processing and n-value conversion processing of the rendering instructions stored in the storage means;

first rendering means for developing the rendering instructions of each scan line into multivalued bitmap data, performing color processing of the multivalued bitmap data and converting the color processed multivalued bitmap data to n-valued bitmap data, wherein the number of bits associated with the multivalued bitmap data is greater than n;

second rendering means for performing rendering processing by pasting n-valued data converted by the n-value conversion processing into an object corresponding to the rendering instructions to generate n-valued bitmap data;

determining means for reading out the rendering instructions that have been stored in the storage means and determining whether the rendering instructions include a rendering instruction other than overwriting for each scan line after the processing means has processed the rendering instructions; and

control means for extracting edges of objects in the rendering instructions in each scan line and exercising control so as to cause the first rendering means to render the

multivalued bitmap data between the edges to convert into the n-valued bitmap data of the scan line if the determining means determines that the rendering instructions include a rendering instruction other than the overwriting for a scan line, and to cause the second rendering means to generate the n-valued bitmap data of the scan line if the determining means determines that the rendering instructions do not include a rendering instruction other than the overwriting for the scan line,

wherein the control means causes the first rendering means or the second rendering means to develop the rendering instructions into the n-valued bitmap data line by line, and

wherein a phase at the time of conversion to the n-valued bitmap data by the first rendering means is made to conform with a phase at the time of generation of the n-valued bitmap data by the second rendering means, such that irregular rendering is suppressed in switching between the first rendering means and the second rendering means.

2. to 3. (Cancelled).

4. (Previously Presented) The apparatus according to claim 1, wherein the storage means sorts and stores entered rendering instructions, and the first and second rendering means read out and process the rendering instructions in the order in which they have been sorted and stored in the storage means.

5. (Original) The apparatus according to claim 4, wherein the sorting order is in a direction from the top to the bottom of a page.

6. (Original) The apparatus according to claim 1, wherein the value of n is
2.

7. (Currently Amended) A printing control method for outputting print
data and executing printing, comprising:

using a processor to perform:

a storage step of inputting rendering instructions and storing the rendering
instructions in a memory page by page;

a processing step of performing color processing and n-value conversion
processing of the rendering instructions stored in the storage step;

a first rendering step of developing the rendering instructions of each scan
line into multivalued bitmap data, performing color processing of the multivalued bitmap
data and converting the color processed multivalued bit map data to n-valued bitmap data,
wherein the number of bits associated with the multivalued bitmap data is greater than n;

a second rendering step of performing rendering processing by pasting
n-valued data converted by the n-value conversion processing into an object corresponding
to the rendering instructions to generate n-valued bitmap data;

a determining step of determining whether the rendering instructions that
have been read out of the memory include a rendering instruction other than overwriting
for each scan line after the processing step has processed the rendering instructions; and

a control step of extracting edges of objects in the rendering instructions in
each scan line and exercising control so as to cause the first rendering step to render the
multivalued bitmap data between the edges to convert into the n-valued bitmap data of the

scan line if it is determined in the determining step that the rendering instructions include a rendering instruction other than the overwriting for a scan line, and to cause the second rendering step to generate the n-valued bitmap data of the scan line if it is determined in the determining step that the rendering instructions do not include a rendering instruction other than the overwriting for the scan line,

wherein the control step includes causing execution of the first rendering step or the second rendering step to develop the rendering instructions into the n-valued bitmap data line by line, and

wherein a phase at the time of conversion to the n-valued bitmap data in the first rendering step is made to conform with a phase at the time of generation of the n-valued bitmap data in the second rendering step, such that irregular rendering is suppressed in switching between the first rendering step and the second rendering step.

8. to 9. (Cancelled).

10. (Previously Presented) The method according to claim 7, wherein inputted rendering instructed are sorted and stored in the memory in the storage step, and the rendering instructions are read out and processed in the first and second rendering steps in the order in which they have been sorted and stored in the memory.

11. (Original) The method according to claim 10, wherein the sorting order is in a direction from the top to the bottom of a page.

12. (Currently Amended) A printer driver for receiving rendering instructions from an application, creating print data and outputting the print data to a printing apparatus, comprising:

storage means, to which rendering instructions are input from the application, for storing the rendering instructions in a memory page by page;

processing means for performing color processing and n-value conversion processing of the rendering instructions stored in the storage means;

first rendering means for expanding the rendering instructions of each scan line, which rendering instructions have been stored in the memory, into multivalued bitmap data, performing color processing of the multivalued bitmap data and converting the color processed multivalued bitmap data to n-valued bitmap data, wherein the number of bits associated with the multivalued bitmap data is greater than n;

second rendering means for performing rendering processing of by pasting n-valued data converted by the n-value conversion processing into an object corresponding to the rendering instructions to generate n-valued bitmap data;

determining means for reading out the rendering instructions that have been stored in the memory and determining whether the rendering instructions include a rendering instruction other than overwriting for each scan line after the processing means has processed the rendering instructions; and

control means for extracting edges of objects in the rendering instructions in each scan line and exercising control so as to cause the first rendering means to render the multivalued bitmap data between the edges to convert into the n-valued bitmap data of the scan line if the determining means determines that the rendering instructions include a

rendering instruction other than the overwriting for a scan line, and to cause the second rendering means to generate the n-valued bitmap data of the scan line if the determining means determines that the rendering instructions do not include a rendering instruction other than the overwriting for the scan line,

wherein the control means causes the first rendering means or the second rendering means to develop the rendering instructions into the n-valued bitmap data line by line, and

wherein a phase at the time of conversion to the n-valued bitmap data by the first rendering means is made to conform with a phase at the time of generation of the n-valued bitmap data by the second rendering means, such that irregular rendering is suppressed in switching between the first rendering means and the second rendering means.

13. (Previously Presented) The printer driver according to claim 12, wherein the first rendering means includes:

means for generating multivalued bitmap data based upon the rendering instructions;

first color correcting means for performing a color correction of the multivalued bitmap data;

first color converting means for converting colors of the multivalued bitmap data that has been subjected to the color correction by the first color correcting means to multivalued bitmap data of another color space; and

n-value converting means for subjecting the multivalued bitmap data that has been subjected to the color conversion by the first color converting means to an n-value conversion.

14. (Previously Presented) A printer driver according to claim 12, wherein the second rendering means includes:

second color correcting means for correcting colors of an image included in the rendering instructions;

second color converting means for converting colors of the image that has been subjected to the color correction by the second color correcting means to colors of another color space;

image n-value converting means for subjecting the image data of the image that has been subjected to the color conversion by the second color converting means to an n-value conversion and creating an n-valued pattern; and

means for creating n-valued bitmap data based upon the n-valued pattern obtained by the n-value conversion performed by the image n-value converting means.

15. (Previously Presented) The apparatus according to claim 1, wherein the processing means performs the color processing and n-value conversion processing of all rendering instructions of a page to be processed that are stored in the storage means.